

## REMARKS/ARGUMENTS

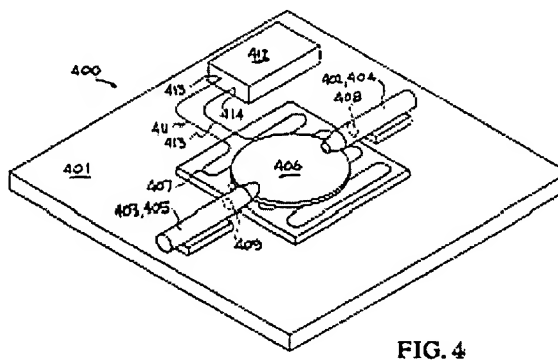
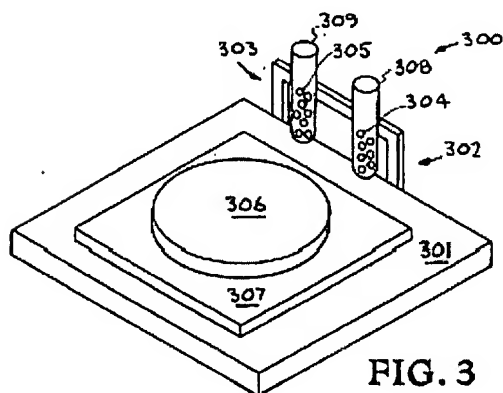
The Office Action mailed May 16, 2007 has been carefully reviewed. Reconsideration of this application, as amended and in view of the following remarks, is respectfully requested. The original application contained claims 1-26. Claims 25-26 stand withdrawn from consideration in this application in response to a restriction requirement. The claims presented for examination are claims 1-24.

### 35 USC §103 Rejection

In the Office Action mailed May 16, 2007, claims 1-24 were rejected under 35 USC §103(a) as allegedly being unpatentable over the primary Kardish (USPN 5,648,047) in view of the secondary Dietze et al (USPN 5,035,862) and further view of Applicants' allegedly admitted prior art (page 22-23 of the instant specification). Applicants believe that claims 1-24 are patentable and that the Kardish and Dietze et al references would not support a 35 USC §103(a) rejection. Applicants' do not admit that page 22-23 is prior art. In addition, secondary considerations overcome the rejection of claims 1-24 under 35 USC §103(a).

### Applicants' Claimed Invention

Applicants' invention is illustrated in FIGS. 3 and 4 reproduced below.



Applicants' claimed invention is claimed in independent claims 1 and claim 13 as follows:

1. A tester for testing for explosives associated with a test location, comprising:  
a first explosives detecting reagent;  
a first reagent holder and dispenser, said first reagent holder and dispenser containing said first explosives detecting reagent;  
a second explosives detecting reagent;  
a second reagent holder and dispenser containing said second explosives detecting reagent;  
a sample collection unit for exposure to said test location, exposure to said first explosives detecting reagent, and exposure to said second explosives detecting reagent; and  
an environmental unit for receiving said sample collection unit and processing said sample collection unit for testing the test location for the explosives, said environmental unit being a heater or dryer for heating said sample collection unit.

13. A tester for testing for explosives associated with a test location, comprising:  
a tester body;  
a first reagent for detecting explosives;  
a first reagent container for receiving said first reagent means;  
a second reagent for detecting explosives;  
a second reagent container for receiving said second reagent means;  
a flat disk sample collection pad for exposure to said test location, exposure to said first explosives detecting reagent, and exposure to said second explosives detecting reagent, said flat disk sample collection pad operatively connected to said tester body,  
wherein said first reagent container is operatively connected to said body and positioned to deliver said first reagent to said flat disk sample collection pad,  
wherein said second reagent container is operatively connected to said body and positioned to deliver said second reagent to said flat disk sample collection pad; and  
an environmental means for receiving said flat disk sample collection pad, said environmental means being a heater or a dryer operatively connected to said tester body for heating or drying said flat disk sample collection pad and testing the test location for the explosives.

### **Prima Facie Case of Obviousness Has Not Been Established**

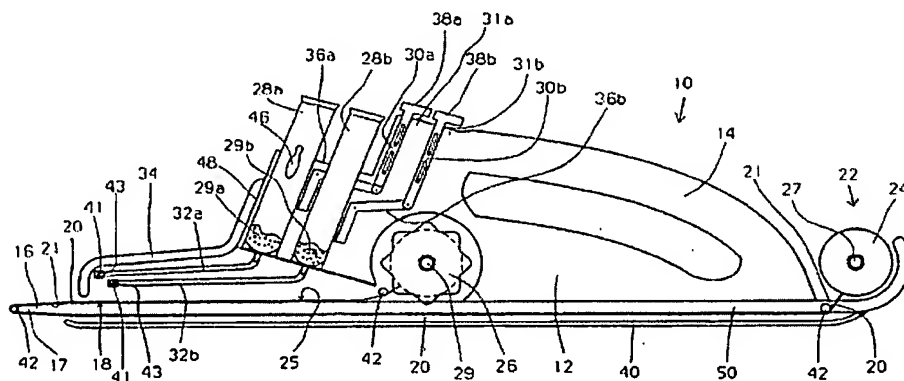
The rejection of claims 1-24 under 35 U.S.C. §103(a) is respectfully traversed. The Examiner bears the initial burden of factually supporting a *prima facie* conclusion of obviousness (M.P.E.P. Section 2142). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, the Examiner must provide reasons for combining the references (Margaret A. Focarino May 3, 2007 Memorandum Re: Supreme Court decision on KSR Int'l. Co. v. Teleflex, Inc.). Second, there must be a reasonable expectation of success. Third, the prior art reference (or reference when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Appellant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). In assessing any *prima facie* conclusion of obviousness the guidance of the Supreme Court in *Graham v. John Deere Co.* is used. *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966) requires determining: "the scope and content of the prior art," ascertaining "the differences between the prior art and the claims at issue," and resolving "the level of ordinary skill in the pertinent art."

A "Prima Facie Case of Obviousness" in combining the primary Kardish and the secondary Dietze et al reference has not been established. The Examiner has not met the initial burden of factually supporting a *prima facie* conclusion of obviousness (M.P.E.P. Section 2142).

### **The Primary Kardish Reference**

The abstract of the primary Kardish reference describes the device as, "a hand-held device for rapid colorimetric detection of explosives, narcotics, and other chemicals which can be accurately operated by non-skilled personnel and perform numerous tests in a quick sequential manner without exposing a user to

hazardous reagents and without exposing sensitive reagents to deteriorating environmental conditions, the device comprising (a) a housing for handling and using the device, the housing including a sampling area and a testing area; (b) a roll of substrate for sampling materials suspected as including the chemical; (b) a feeding reel being rotatably connected to the housing, the feeding reel being for accommodating the roll of substrate; (c) at least one container for accommodating at least one detecting reagent, the at least one detecting reagent is for the colorimetric detection of the chemical; and (d) at least one dispensing mechanism for dispensing a predetermined volume of the at least one reagent onto the substrate at the testing area." The device is illustrated in FIG. 1 reproduced below.



The primary Kardish reference describes the device as follows:

"Housing 12 further includes a sampling area 16 and a testing area 18, ... preferably, sampling area 16 is formed as a tip 17 .... a roll 22 of substrate 20 ... roll 22 of substrate 20 is engaged by a feeding reel 24 which is rotatably connected to housing 12."

"Used segments 25 of substrate 20 are preferably engaged by a take-up reel 26 which is rotatably connected to housing 12, preferably within housing 12. Take-up reel 26 is for advancing substrate 20 and thus the sampled material from sampling area 16 into testing area 18."

"Device 10, further includes at least one, preferably two, more preferably four container 28 (two are shown in FIG. 1, referred to as 28a and 28b) for accommodating at least one detecting reagent 29a and 29b,"

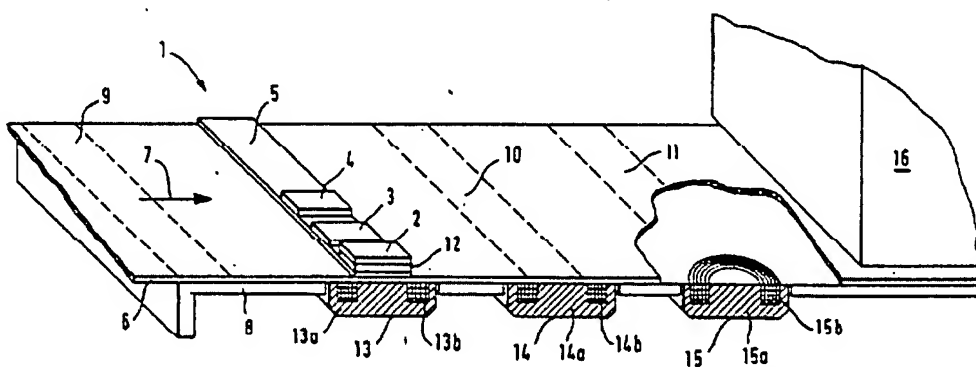
"Device 10 further includes at least one dispensing mechanism 30a and 30b for dispensing a predetermined volume of reagents 29a and 29b, respectively, onto substrate 20 at testing area 18."

"In a preferred embodiment, each of containers 28 is continued by a tube 32a and 32b, respectively, for directing reagents 29 to testing area 18. Each of tubes 32 preferably has a diameter permitting the formation of a capillary effect for effecting the dispensing of the predetermined volume of reagents 29 onto substrate 20 at testing area 18. By having a capillary effect, tubes 32 ensure that constant volume of liquids (i.e., one drop from each reagent) is delivered onto testing area 18. The quantity (i.e., volume) of liquid in a given drop is a complex function of the diameter of tubes 32, its material of made and the type of liquid. Yet, one can experimentally select tubes 32 permitting application of a particular quantity of reagents 29 onto substrate 20 at testing area 18."

### The Secondary Dietze et al Reference

The secondary Dietze et al reference shows "An analytical system for the determination of a component of a fluid, especially blood or urine." The secondary Dietze et al reference does not mention testing for explosives.

The secondary Dietze et al reference is illustrated by FIG. 1 reproduced below.



The secondary Dietze et al reference describes the heater(s) as follows:

"Several induction heaters 13, 14 and 15 are embedded in the transport table 8. In each case, they comprise a ferrite core 13a, 14a, 15a and a coil 13b, 14b, 15b. In the area of the induction heater 15, the paper sheet is shown cut open, so that the circular construction of the core and the coil can be seen."

"To heat it to an elevated temperature, the test field must be brought to the working area of an induction heater. In FIG. 1, a magnetic field emanates from the induction heater 13, when an alternating current flows through coil 13b of heater 13. The corresponding test field of a test strip, lying on positions 10 and 11, is in the working area of the alternating magnetic field emanating from the induction heaters 14, 15. Generally the metallic conducting layer 12 has to be in the working area of the magnetic field in the sense that it has to be positioned in the range of that field such that an effective heating is achieved due to the electric current inductively generated by the field. Preferably the distance between the coil 13b and the metal foil 12 should be as short as possible. In practice, a distance of 3 to 5 mm has proven especially satisfactory."

**The Criteria That The References Must Teach All Claim Limitations  
Has Not Been Established**

The Kardish et al reference and the Dietze et al reference do not disclose many Applicants' claim limitations. The third criteria of the Examiner's initial burden of factually supporting a *prima facie* conclusion of obviousness is: "the prior art reference (or reference when combined) must teach or suggest all the claim limitations." In assessing any *prima facie* conclusion of obviousness the guidance of the Supreme Court in *Graham v. John Deere Co.* is used. *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966) requires determining: "the scope and content of the prior art" and ascertaining "the differences between the prior art and the claims at issue."

The Kardish et al reference and the Dietze et al reference do not disclose the limitations of Applicants' claims 1- 24 identified below.

"an environmental unit for receiving said sample collection unit and processing said sample collection unit for testing the test location for the explosives, said environmental unit being a heater or dryer for heating said sample collection unit."

"wherein said environmental unit is a heater."

"wherein said environmental unit is a dryer."

"wherein said environmental unit is a heater and dryer."

"wherein said environmental unit is a chemical heater."

"wherein said environmental unit is an electric heater."

"including a heating pad."

"including a receiving unit for receiving said sample collection unit."

"including a heating pad and a receiving unit for receiving said sample collection unit."

"including a battery for providing power to said heater."

"including a switch for controlling said heater."

"including a battery for providing power to said heater and a switch for controlling said heater."

"a flat disk sample collection pad for exposure to said test location, exposure to said first explosives detecting reagent, and exposure to said second explosives detecting reagent, said flat disk sample collection pad operatively connected to said tester body."

Since the limitations listed and described above are not shown by either the Kardish et al reference or the Dietze et al reference, a *prima facie* case of obviousness has not been established. Further, since both the Kardish et al reference or the Dietze et al reference fail to show the claim limitations of Applicants' claims 1-24 there can be no combination of the two references that would show Applicant's invention. There is no combination of Kardish et al reference and the Dietze et al reference that would produce the combination of elements of Applicants' claims 1-24. Thus, the combination of references in the Office Action mailed May 16, 2007 fails to support a rejection of claims 1-24 under 35 USC §103(a), and the rejection should be withdrawn.

**The Criteria That There Must Be Reasons for Combining The Kardish et al and Dietze et al References Has Not Been Established**

The first criteria of the Examiner's initial burden of factually supporting a *prima facie* conclusion of obviousness is: the Examiner must provide reasons for combining the references (Margaret A. Focarino May 3, 2007 Memorandum Re: Supreme Court decision on KSR Int'l. Co. v. Teleflex, Inc.). The rejection in the Office Action mailed May 16, 2007 does not provide an explanation of how or why the Kardish et al reference and the Dietze et al reference could be combined. Thus, the combination of references in the Office Action mailed May 16, 2007 fails to support a rejection of claims 1-24 under 35 USC §103(a), and the rejection should be withdrawn.

**The Criteria That There Must Be A Reasonable Expectation of Success in Combining The Kardish et al and Dietze et al References Has Not Been Established**

The criteria that "There Must Be A Reasonable Expectation of Success" in combining the Kardish et al and Dietze et al references has not been established. Claim 13 includes the element, "a flat disk sample collection pad for exposure to said test location, exposure to said first explosives detecting reagent, and exposure to said second explosives detecting reagent, said flat disk sample collection pad operatively connected to said tester body."

The primary Kardish reference discloses "a roll 22 of substrate 20 ... Roll 22 of substrate 20 is engaged by a feeding reel 24 which is rotatably connected to housing 12." "Used segments 25 of substrate 20 are preferably engaged by a take-up reel 26 which is rotatably connected to housing 12, preferably within housing 12. Take-up reel 26 is for advancing substrate 20 and thus the sampled material from sampling area 16 into testing area 18."



Applicants' claim 13 element "a flat disk sample collection pad for exposure to said test location, exposure to said first explosives detecting reagent, and exposure to said second explosives detecting reagent, said flat disk sample collection pad operatively connected to said tester body" is very different from the Kardish "roll 22 of substrate 20 engaged by a feeding reel 24 rotatably connected to housing 12." Applicants' claim element would not work in the Kardish reference and would destroy the operability of the Kardish reference device.

The secondary Dietze et al reference does not show Applicants' claim 13 element "a flat disk sample collection pad for exposure to said test location, exposure to said first explosives detecting reagent, and exposure to said second explosives detecting reagent, said flat disk sample collection pad operatively connected to said tester body."

There would not be a reasonable expectation of success in combining the primary Kardish reference and the secondary Dietze et al reference because Applicants' claim element "a flat disk sample collection pad for exposure to said test location, exposure to said first explosives detecting reagent, and exposure to said second explosives detecting reagent" would not work in the Kardish reference and would destroy the operability of the Kardish reference device. Also, both the primary Kardish reference and the secondary Dietze et al reference both fail to show Applicants' claim 13 element.

#### **Secondary Considerations/NonObviousness of Applicants' Invention**

The invention of Applicants' claims 1-24 fulfills a long-felt but unsolved need, has obtained recognition by peers and praise by others, and has been licensed and obtained commercial success.

### **Applicants' Invention Fulfills an Important and Long Felt Need**

The 08/23/2006 article "The Three Sectors of Society That Rely on Explosives Detection," <http://www.explosives-detection.info/the-three-sectors-of-society-that-rely-on-explosives-detection.html>, shows that there is an important and long felt need for explosives detection. A copy of the article is attached. The article states: "After an explosion one does not need an expert to conduct explosives detection. For security personnel, however, the real trick is finding a way to detect an explosives device before its detonation leads to injuries or fatalities. Three different sectors have had reason to hire large numbers of security personnel. Three different sectors of society have reason to purchase equipment for explosives detection. The following article takes a closer look at the nature of the security needs in those three sectors. It also mentions how new and improved detection devices can alleviate the threat posed by many types of dangers.

Explosives, such as those in firecrackers, have been around for quite some time. The need for detection of those who possess such explosives has recently created an entire new industry. The equipment produced by manufacturers within that industry has been purchased by groups in three different sectors of modern-day society.

Those involved with transportation security represent one group that has come to rely on explosives detection. At one time detection of explosives relied exclusively on the use of metal detectors. Present-day suicide bombers, however, have forced those in transportation security to look beyond the ability to detect metallic devices. Present-day explosives detection must be able to pick-up those who have non-metallic devices on their person.

One device that can do just that is the Sentinel II, a device used at portals in airports. The Sentinel II causes a flow of air to pass over each passenger. The

air removes any loose explosives particles from the skin or clothing. The sample obtained from each passenger needs to be analyzed for explosives.

The members of the military occupy the second sector of society that has come to rely on explosives detection. The manufacturers of the detection devices for the military have focused their efforts on the miniaturization of existing devices. They have now developed collective protection alarms that are easy to move from place to place. Such alarms offer added protection to military vehicles, small boats with military personnel and command bunkers.

The third sector of society that has started to use explosives detection contains the persons involved with facilities security. This represents a large sector, one with many possible targets for explosive devices. Some of the facilities can be described as vital utilities. Water treatment plants and electrical generators powered by nuclear reactors are two such vital utilities. Sports centers and shopping malls are also facilities that have been mentioned as "soft targets" for explosives experts.

At all of those facilities the security personnel have three major concerns. One concern focuses on possible contamination in the heating, ventilation or air conditioning systems. A second concern considers the possible contamination of the water supply. The third concern brings-up the need for explosives detection. That is the fear that someone could plant a bomb inside of any such facility.

The above information has failed to mention one further possible treat to the occupants in any facility. It is also a threat that could disrupt the functioning of a transportation system. That unmentioned threat received much media attention in the mid 1990's. At that time, a terrorist released a toxic gas into a Japanese subway."

The July 2005 article "HomelandDefenseStocks.com Reports: As Terrorist Attacks Continue, Need for Explosives Detection System Technology Surges," in

www.HomelandDefenseStocks.com, states, "www.HomelandDefenseStocks.com (HDS) an investor news portal for the homeland defense and security sector, reports on the need for explosives detection system technologies as threats of terrorist attacks continue. Companies working towards bomb detection technology include L-3 Communications Security and Detection Systems, Inc. (NYSE: LLL), the world's leading supplier of X-ray security screening systems; Markland Technologies (OTC BB: MRKL) a defense and homeland security company transforming advanced laboratory technology into real-world products such as next-generation electronic imaging and other detection solutions; Sniffex (OTC: SNFX) manufacturer of a pocket-sized, hand held explosives detection device; and Law Enforcement Associates Corporation (OTC BB: LENF), a manufacturer of a diverse line of undercover surveillance and detection products." A copy of the article "HomelandDefenseStocks.com Reports: As Terrorist Attacks Continue, Need for Explosives Detection System Technology Surges" is attached.

The invention of Applicants' claims 1-24 fulfills this important and long felt need. The invention of Applicants' claim 1-24 provides an explosives tester that is fast, sensitive, and is easy to implement. The explosives tester provides a simple, chemical, field spot-test by to provide a rapid screen for the presence of a broad range of explosive residues. The explosives tester is fast, extremely sensitive, low-cost, very easy to implement, and provides a very low rate of false positives. The explosives tester for explosives provides a fast, sensitive, low-cost, very easy to implement system for testing the suspected packages. The explosives tester for explosives is inexpensive and disposable. The explosives tester for explosives has detection limits between 0.1 to 100 nanograms, depending on the type of explosives present. A large number of common military and industrial explosives can be easily detected such as HMX, RDX, NG,

TATB, Tetryl, PETN, TNT, DNT, TNB, DNB and NC. The explosives tester is small enough that a number of them can fit in a pocket or brief case. The explosives tester can be used virtually anywhere, car portal checkpoints, airports, first responders, Federal, State, and local agencies. The explosives tester can be used as a primary screening tool by non technical personnel to determine whether a surface contains explosives. Explosive Ordinance Disposal teams cannot simply explode suspect packages for concerns of disbursing radioactive material, biological agents, or chemical agents.

**Applicants' Claim 1-24 Invention Has Obtained Recognition by Peers & Praise by Others**

The article "Pocket-sized Test Detects Trace Explosives," in the October 2006 issue of Science & Technology Review (S&TR) contains the following statements:

"SECURITY forces throughout the world need detection tools that can quickly and accurately locate small amounts of explosives. Technology developed by Lawrence Livermore will provide emergency response, law-enforcement, and military personnel with an easy-to-use explosives detector small enough to carry in a shirt pocket. This technology, called E.L.I.T.E.<sup>™</sup> (Easy Livermore Inspection Test for Explosives), is inexpensive and requires minimal training for deployment."

"The E.L.I.T.E. card technology was developed by a team of scientists and engineers from the Laboratory's Forensic Science Center (FSC) and Center for Energetic Materials. Led by FSC deputy director John Reynolds, the team won a 2006 R&D 100 Award for the new technology."

"The product, which also received a 2006 Excellence in Technology Transfer Award from the Federal Laboratory Consortium, is marketed by Field Forensics, Inc., of Florida."

"Since October 2005, when units became commercially available, Field Forensics has sold E.L.I.T.E. cards to many government agencies, including the Department of Homeland Security, New York State Police, Royal Canadian Mounted Police, and Queensland (Australia) Police."

A copy of the article "Pocket-sized Test Detects Trace Explosives," in the October 2006 issue of Science & Technology Review (S&TR) is enclosed.

The article "FLC AWARDS – 2006 AWARDS FOR EXCELLENCE IN TECHNOLOGY TRANSFER DEPARTMENT OF ENERGY - Lawrence Livermore National Laboratory - ELITE: Easy Livermore Inspection Tester for Explosives" in the Department of Energy (DOE) website contains the following statements:

"International terrorist activity has increased markedly in recent years, spurring demand by security agencies worldwide for efficient, accurate explosives detection capabilities."

"To meet this need, Lawrence Livermore National Laboratory (LLNL) perfected a disposable, portable, highly accurate explosives detector."

"Field Forensics is manufacturing 500 ELITE cards for DHS and began delivery in October 2005."

"In autumn 2005, Field Forensics introduced the ELITE detection card and associated technology to a broader audience at an annual security conference attended by many state law enforcement agencies."

A copy of the article "FLC AWARDS – 2006 AWARDS FOR EXCELLENCE IN TECHNOLOGY TRANSFER DEPARTMENT OF ENERGY" on the February 15, 2007 Department of Energy (DOE) website is attached.

The article "FLC's Tech Transfer Award Winners" in the June/July issue of Innovation: America's Journal of Technology Commercialization" contains the following statements:

"More than 700 laboratories and research centers—representing almost all federal departments and agencies—conduct over \$100 billion in research and development annually and employ more than 100,000 scientists and engineers. The Awards for Excellence in Technology Transfer are presented each year to FLC member laboratories and their partners for successfully transferring federally developed technologies."

"Lawrence Livermore National Laboratory ELITE: Easy Livermore Inspection Tester for Explosives Summary: A disposable, portable, highly accurate explosives detector. The ELITE detection card is highly sensitive to more than 30 explosives, making it one of the most effective detection systems available."

"Transfer: Field Forensics, Inc. responded to a Federal Business Opportunities announcement of the ELITE licensing opportunity and was chosen as the licensee."

A copy of the article ""FLC's Tech Transfer Award Winners" in the June/July issue of Innovation: America's Journal of Technology Commercialization" is attached.

**Applicants' Claim 1-24 Invention Has Been Licensed & Obtained Commercial Success**

The May 4, 2006 issue of the *Valley Times* newspaper states, "The lab has licensed the technology to Field Forensics Inc. of St. Petersburg, Fla." A copy of The May 4, 2006 issue of the *Valley Times* is enclosed. The May 4, 2006 News Release "Screening tool to help detect explosives nets technology transfer award for LLNL researchers" by the Lawrence Livermore National Laboratory states,

"The technology has been licensed to Field Forensics Inc., a St. Petersburg, Fla., company, and went on the market last October." A copy of the May 4, 2006 News Release "Screening tool to help detect explosives nets technology transfer award for LLNL researchers" by the Lawrence Livermore National Laboratory is attached. Field Forensics Inc. (FFI), Applicants' licensee, sells models of Applicants' claimed invention worldwide. A copy of the February 15, 2007 Field Forensics Inc. (FFI) website is attached.

Attached are declarations by Catherine Elizondo and Eddie E. Scott providing facts about Applicants' claims 1-24 invention having been licensed. The declaration by Catherine Elizondo states: "I confirm that the explosives detector called the Easy Livermore Inspection Test for Explosives or ELITE has been licensed to Field Forensics Inc. I negotiated the license agreement between The Regents of the University of California and Field Forensics Inc. of St. Petersburg, Florida and am familiar with the technology licensed. One of the inventions licensed by the license agreement is Record of Invention IL-11088. The subject patent application IL-11088 is a patent application based upon Record of Invention IL-11088 and the subject patent application IL-11088 is one of the patent applications licensed to Field Forensics Inc. under the license agreement." The declaration by Eddie E. Scott states: "I have reviewed the license agreement between The Regents of the University of California and Field Forensics Inc. of St. Petersburg, Florida. I confirm that the explosives detector called the Easy Livermore Inspection Test for Explosives or ELITE has been licensed to Field Forensics Inc. One of the inventions licensed by the license agreement is Record of Invention IL-11088. The subject patent application IL-11088 is a patent application based upon Record of Invention IL-11088 and the subject patent application IL-11088 is one of the patent applications licensed to Field Forensics Inc. under the license agreement."

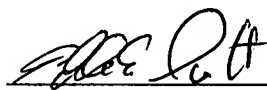


The secondary considerations that the invention of Applicants' claims 1-24 fulfills an important and long felt need, has obtained recognition by peers and has obtained praise by others, and has been licensed and has obtained commercial success should be taken into account in deciding the obviousness or nonobviousness of Applicants' claims 1-24. The secondary considerations are substantial and overcome the rejection of claims 1-24 under 35 USC §103(a) over the primary Kardish reference in view of the secondary Dietze et al reference stated in the Office Action mailed May 16, 2007.

SUMMARY

The undersigned respectfully submits that in view of the foregoing amendment and remarks the rejections of the claims raised in the Office Action dated May 16, 2007 have been fully addressed and overcome, and the present application is believed to be in condition for allowance. It is respectfully requested that this application be reconsidered, that the claims be allowed, and that this case be passed to issue. If it is believed that a telephone conversation would expedite the prosecution of the present application, or clarify matters with regard to its allowance, the Examiner is invited to call the undersigned attorney at (925) 424-6897.

Respectfully submitted,



Eddie E. Scott  
Attorney for Applicants  
Registration No. 25,220  
Tel. No. (925) 424-6897

Livermore, California

Dated: August 3, 2007

**Valley Times**  
**May 04, 2006**  
**Also appeared San Jose Mercury News**

**Area lab creates small, easy explosives-detection device**

**Livermore Laboratory's credit card-sized tool is in high demand from military, police officers**

*Betsy Mason*

**Lawrence Livermore Laboratory** has made explosives detection easier with a new credit-card sized kit that is cheap, easy and works in just minutes.

With terrorism fears running high since the Sept 11, 2001 terrorist attacks, detecting explosives is an even bigger priority for law enforcement and military personnel. Building on years of research with explosives detection in a laboratory setting, a team led by Livermore chemist John Reynolds grouped existing technology into a compact, stable package that could easily fit into the glove box of a police cruiser or a soldier's field pack.

The new detector is just two inches by three inches and slightly thicker than a credit card. Each kit will cost around \$25 and can generate results from one test in between one and four minutes.

The lab has licensed the technology to Field Forensics Inc. of St. Petersburg, Fla. On the market since October, customers include the U.S. Army and Canadian and Australian police. The company has pending orders from federal and state police agencies and from nuclear power plants.

"We have been talking with the airport authorities and they're quite interested in the technology," Reynolds said. "So I expect we'll see it in airports soon."

The new kit is as sensitive and reliable as the explosives-screening machines in major airports, but it is much less expensive and faster and easier to use.

The Lawrence Livermore team had military applications in mind when its members developed the kit. The ability to hunt down bomb makers in Iraq is critical to U.S. troops, they said.

"We think this will play an integral role," said Reynolds. "If you could catch them further up in the chain, like where the bombs are made, you'd actually be able to mitigate more attacks."

The kit can detect more than 30 different explosives. It contains a swipe that is used to wipe a suspect surface and then be re-inserted into the kit. A tiny glass vial full of chemicals is then broken inside the card, and if TNT is present, the swipe will change color. If there is no reaction, a second vial can be broken that will detect other types of explosives.

The new detector is called the Easy Livermore Inspection Test for Explosives, or ELITE.

The lab's researchers on the ELITE project were honored Wednesday night with a Federal Laboratory Consortium award for excellence in technology transfer that was presented during an awards ceremony in Minneapolis.